OCTOBER, 1930

ENTOMOLOGICAL NEWS

Vol. XLI No. 8

FERDINAND HEINRICH HERMAN STRECKER
1836-1901

CONTENTS

Gunder—North American Institutions Featuring Lepidoptera—XVI . 249
Needham—Emendatory Notes on the "Handbook of North American Dragonflies" (Odonata) 252
Knight—An European Plant-Bug (Amblytylus nasutus Kirschbaum) recognized from Massachusetts (Hemiptera, Miridae) 256
Hayward—The Night Flight of Diurnal Butterflies (Lepid) . . . 258
Reinhard—A Synopis of the Genus Macromeigenia Including the Description of One New Species (Diptera: Tachinidae) 261
Changes in the Department of Entomology, Massachusetts Agricultural College 264
Entomological Literature 265
Review—Comstock's Manual for the Study of Insects. 273
Review—Imm's General Textbook of Entomology 274
Review—Weber's Biologie der Hemipteren 275
Obituaries—Mrs. Anna Botsford Comstock, Dr. George Dimmock, James Waterston and Ernest Baylis 277
Correction. 280

PHILADELPHIA, PA.
THE ACADEMY OF NATURAL SCIENCES,
Logan Square

Entered at the Philadelphia, Pa., Post Office as Second Class Matter.
Acceptance for mailing at the special rate of postage prescribed for in Section 1
Act of October 3, 1917, authorized January 15, 1921.

ENTOMOLOGICAL NEWS

published monthly, excepting August and September, by The American Entomological Society.

Philip P. Calvert, Ph.D., Editor; E. T. Cresson, Jr., R. G. Schmieder, Ph.D., Associate Editors; John C. Lutz, Business Manager.

Advisory Committee: Philip Laurent, J. A. G Rehn, Chas. Liebeck, J. Chester Bradley, Ph.D., Frank Morton Jones, John C. Lutz, Max Kisliuk, Jr., Wm. W. Chapman.

The subscription price per year of ten (10) numbers is as follows:

United States and possessions . . .	**$3.00**
Canada, Central and South America .	**3.15**
Foreign	**3.25**

Single copies 35 cents.

ADVERTISING RATES: Full width of page. Payments in advance.
One issue, 1 in., $ 1.20, 2 in., $ 2.40, half page, $ 4.00, full page, $ 8.00
Ten issues " 11.00, " 20.00, " 35.00, " 70.00

SUBSCRIPTIONS. All remittances and communications regarding subscriptions, non-receipt of the NEWS or of reprints, and requests for sample copies, should be addressed to

ENTOMOLOGICAL NEWS, 1900 Race Street, PHILADELPHIA, PA.

All complaints regarding non-receipt of issues of the NEWS should be presented within three months from date of mailing of the issue. After that time the numbers will be furnished only at the regular rate for single copies. Not more than two issues will be replaced gratis, through loss in transit or in change of address, unless such have been registered, at the subscriber's expense. No subscriptions accepted which involve giving a receipt acknowledged before a notary, except at the subscriber's expense.

MANUSCRIPTS AND ADVERTISEMENTS. Address all other communications to the editor, Dr. P. P. Calvert, Zoological Laboratory, University of Pennsylvania, Philadelphia, Pa.

TO CONTRIBUTORS. All contributions will be considered and passed upon at our earliest convenience and, as far as may be, will be published according to date of reception. The receipt of all papers will be acknowledged. Owing to the limited size of each number of the NEWS, articles longer than six printed pages will be published in two or more installments, unless the author be willing to pay for the cost of a sufficient number of additional pages in any one issue to enable such an article to appear without division.

Proof will be sent to authors. Twenty-five "extras" of an author's contribution, without change in form and without covers, will be given free when they are wanted; if more than twenty-five copies are desired *this should be stated on the MS.*

Owing to increased cost of labor and materials, no illustrations will be published in the NEWS for the present, except where authors furnish the necessary blocks, or pay in advance the cost of making blocks and pay for the cost of printing plates. Information as to the cost will be furnished in each case on application to the Editor. Blocks furnished or paid for by authors will, of course, be returned to authors, after publication, if desired.

Stated Meetings of The American Entomological Society will be held at 7.30 o'clock P. M., on the fourth Thursday of each month, excepting June, July, August, November and December, and on the third Thursday of November and December.

Communications on observations made in the course of your studies are solicited; also exhibits of any specimens you consider of interest.

The printer of the "News" will furnish reprints of articles over and above the twenty-five given free at the following rates: One or two pages, twenty-five copies, 35 cents; three or four pages, twenty-five copies, 70 cents; five to eight pages, twenty-five copies, $1.40; nine to twelve pages, twenty-five copies, $2.00; each half-tone plate, twenty-five copies, 30 cents; each plate of line cuts, twenty-five copies, 25 cents; greater numbers of copies will be at the corresponding multiples of these rates.

E. H. BRYAN, Jr. O. H. SWEZEY

ENTOMOLOGICAL NEWS

VOL. XLI. OCTOBER, 1930 No. 8

North American Institutions Featuring Lepidoptera. XVII. Bishop Museum, Honolulu, T.H.

By J. D. GUNDER, Pasadena, California.

(Plates XXI-XXIII).

The Bernice P. Bishop Museum of Honolulu was founded by Charles Reed Bishop in memory of his wife, Princess Bernice Pauahi Bishop, who was the last of the royal descendants of Kamehameha I, the great native king of the Hawaiian Islands. From a single room, erected in 1889, the Museum has grown, until now it includes a large stone building (see Plate XXI) containing six exhibition halls and two three-story concrete buildings which house the offices and scientific study collections. Another large stone building, at present occupied by the Kamehameha Schools, in whose grounds the Institution is situated, will be used for future exhibitions.

The Museum is devoted solely to the study of the Polynesian peoples and the natural history of the islands of the Pacific and its halls are open daily to the public without charge. In addition to a large attendance of tourists and island residents, several thousands of school children are brought by classes each year to view the exhibits. The study collections and excellent library are always available to scientists and others interested in the various subjects represented.

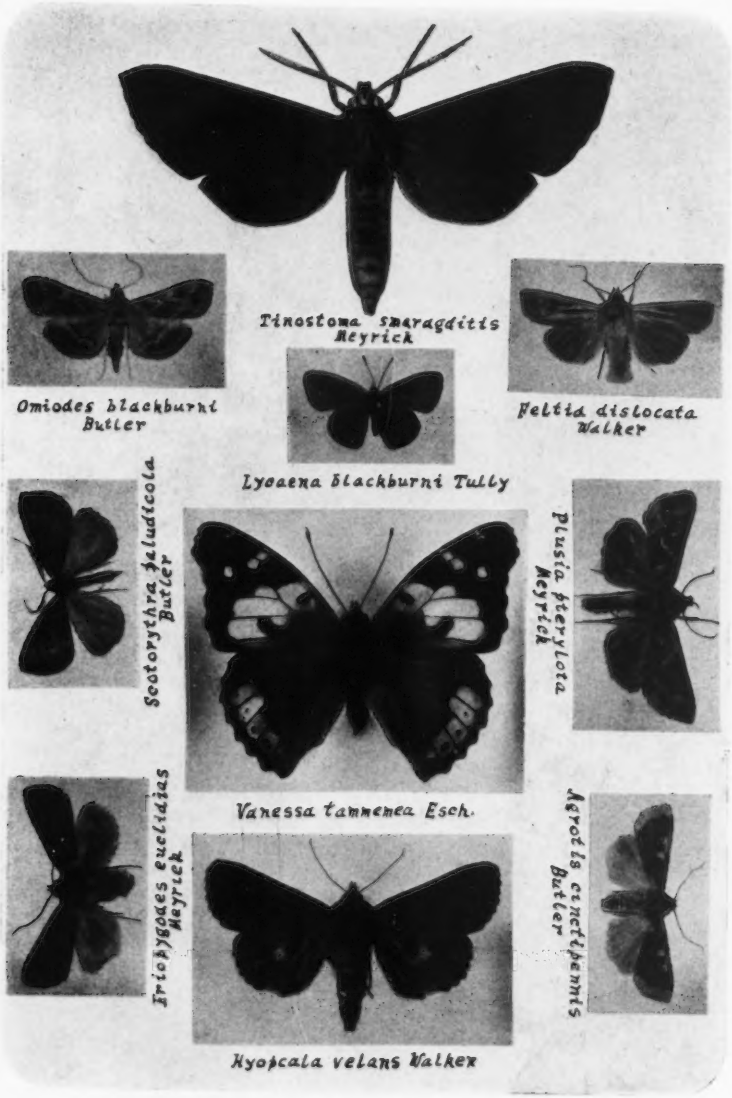
The collections include one of the largest and certainly finest series of objects illustrating the life, customs and beliefs of the Polynesians in the world. Of natural history specimens there are splendid bird collections, a few mammals, reptiles and marine invertebrates, a representative collection of fish, and a very extensive collection of mollusks, including over 900,000 pulmonates or land shells. The herbarium contains a valuable and rapidly growing collection of plants from the Pacific Islands and neighboring tropical regions.

Regarding the insect collections. Since the time of the early

Pacific explorers the insects of Hawaii and other isolated Pacific island groups have attracted the attention of entomologists. Because of isolation and varying environmental conditions, these Islands contain a very unique and specialized insect fauna. The interesting specimens, and many of them were unique, which found their way to Europe as the result of the first explorers, or in the case of Hawaii of the early collection made by Rev. Thomas Blackburn, aroused a very considerable interest. Certain exploring expeditions were sent out to this region, notably that of Dr. R. C. Perkins to Hawaii. Perkins collected about a hundred thousand specimens on which material the splendid "Fauna Hawaiiensis" was based. Also, the presence of Dr. Perkins in the Islands at the time of a severe sugar leafhopper outbreak, led eventually to the control of this and other pests, and to the establishment in Hawaii of several entomological laboratories, notably those of the Hawaii Sugar Planters' Association. The residence of these entomologists and their organization into the Hawaiian Entomological Society [1] has caused the insect fauna of Hawaii to be better known than that of any other similar island region in the world, and has made Hawaii famous for its successful control of insect pests by natural enemies.

Portions of the insect groups collected by Perkins are now in the Bishop Museum and many specimens taken by other entomologists in the Islands have also been placed there, making the Museum's collection as a whole one of the best reference collections of Hawaiian insects. In 1915 the Museum acquired Richard Helm's material of some 22,000 specimens from Australia and New Zeland. The late W. M. Giffard has contributed several valuable collections from Hawaii, Samoa and the Solomon Islands. Several expeditions have secured specimens in many of the South Pacific Island groups. There are loan collections from Australia, Fiji, Japan, China, Guam, Southern Asia, Africa and North America. The col-

[1] Several members of the Hawaiian Entomological Society are shown on plate XXIII. Mr. W. M. Giffard has since passed away. I am sorry that F. Muir, C. E. Pemberton, L. A. Whitney and R. H. Van Zwaluwenburg were absent when the picture was taken.



NATIVE HAWAIIAN BUTTERFLIES AND MOTHS

THE HAWAIIAN ENTOMOLOGICAL SOCIETY

F. X. Williams, E. H. Bryan, Jr., D. T. Fullaway, E. M. Ehrhorn, F. C. Hadden, G. P. Wilder, J. F. Illingworth, H. F. Willard, W. M. Giffard, J. S. Rosa, O. H. Swezey, A. C. Mason

lections from Samoa were combined with those made by Buxton and Hopkins in the preparation of "Insects of Samoa" published by the British Museum.

At the present time an Entomological Survey of the Pacific Islands is being conducted jointly by the Bishop Museum and the Hawaiian Sugar Planters' Association. Two collectors have been in the field for over a year and extensive series of specimens have been secured in Tahiti and in the Marquesas Islands. These will be placed in the Museum and field work is being continued to include all other island groups.

Plate XXI shows the commodious entomological room where the collections are stored. There are eight 28-drawer and four 30-drawer steel cabinets housing the various insect orders, in addition to some 300 Schmitt boxes. The Lepidoptera of Hawaii occupies 31 drawers, while 7 drawers are devoted to those of the South Sea Islands and 14 to the Australian collections. There are only two butterflies native to Hawaii; one a *Vanessa* and the other a *Lycaena*, both of which are shown on Plate XXII. A number of moths are also extremely local. Probably the most noteworthy is the famous green Sphinx, *Tinostoma smaragditis* Meyk. This unique example is in the British Museum. At considerable expense and upon two separate occasions, Dr. P. B. Clark of Boston had August Kusche, of San Francisco, visit the type locality, but without success. It seems that the remote district and the time of year when specimens should be found are against the strength of the average collector. I wonder that my friend F. X. Williams, of Honolulu, doesn't try to dig this thing up? They would probably be worth their actual weight in gold.

In 1907 Mr. Otto Swezey was appointed Honorary Curator of Entomology at the Museum and he has since become Consulting Entomologist. Through his efforts and those of other workers, the insect collections are well arranged and classified. Mr. Swezey was born in Rockford, Illinois, on June 7, 1869, obtaining his A.B. at the Lake Forest College and his M.S. at Northwestern University. He has been in the Islands since August 12, 1904, and his entomological papers have, for the most part, been published in the Bulletins of the Experiment

Station, H.S.P.A. and in the Proceedings of the Hawaiian Entomological Society. He is well known for his work on the study and control of sugar cane pests and the biological control methods used, *i.e.* the introduction of natural enemies. The problems have largely been those of combating the leaf-hopper, weevil borer and the root-grub. Just at present Mr. Swezey is much interested in the study of the insect fauna of the native forests and their welfare from an entomological standpoint. The Agricultural Station of the H.S.P.A. has about sixty persons on its staff, of which seven are employed in the Department of Entomology. The Station is in the residence district of Honolulu, about two miles from the water front and occupies some seven acres of grounds laid out in experimental cane-plots, etc. There are five main buildings with about thirty rooms and laboratories. Mr. Swezey spends practically all of his time at the Station, except one half day a week which he devotes to the work on insects at the Bishop Museum.

I am indebted to Mr. E. H. Bryan, Jr., Curator of the Museum, and to Mr. Otto Swezey as well for much of the information contained in this article. The Lepidoptera shown on the plate were loaned to me for photographic reproduction by the Museum through the courtesy of Mr. Swezey. By the way, if any entomologist wants an interesting vacation, plus unusual collecting, go to Honolulu. (And don't forget to try for the Green Sphinx!). The "boys" over there give visitors a real welcome and offer every hospitality.

Emendatory Notes on the "Handbook of North American Dragonflies" (Odonata).

By James G. Needham, Cornell University, Ithaca, New York.

An *errata* sheet for the *Handbook of Dragonflies of North America* (Springfield, 1929) was printed and before the end of 1929 was mailed to all purchasers of the volume, insofar as these could be located. Among the errors, mostly verbal and typographical, there were half a dozen of importance, and likely to mislead the user of the *Handbook,* and I desire to call atten-

tion to them here for the benefit of any who may have been missed in the distribution of the *errata* sheets.

Most serious were three transpositions of names on the figures: *Gomphus furcifer* and *G. villosipes* on p. 116; *Somatochlora septentrionalis* on p. 195, and *S. whitehousei* on p. 196; and *Lestes vidua* and *L. forcipatus* on p. 278.

There are two keys in which the numerals at the right hand margin got disarranged. In the key to the species of *Ophiogomphus* on p. 68, 10 at the right margin should be 13, and 8 should be 11. And in the key to the species of *Sympetrum* on page 232 in the same margin, 8 should be 6, 6 should be 10, and 10 should be 8.

The statement on p. 310 that "The nymphs of none of our American species [of *Coenagrion*] have as yet been made known" was a clear oversight. References should instead have been made to Walker's account of the nymph of *Coenagrion resolutum* in Canad. Ent. 46: 353, 1914.

These errors, and all others hitherto discovered, will be corrected in a second printing, soon to be made.

One species was omitted that should have been included, and one was included that should have been omitted.

I overlooked a record by Dr. Calvert in *Biologia Centrali Americana; Neuroptera,* p. 225 of the occurrence of *Micrathyria hagenii* Kirby at Esperanza Ranch near Brownsville, Texas. This Neotropical genus has not elsewhere been reported from the United States. It will run out in the key to genera of Libellulinae to *Erythrodiplax* on page 202, but will be distinguishable from that genus by the possession of an extra (more than the one always present) crossvein above the bridge. Its nymph is still unknown.

I included *Tramea virginia* Rambur, not because of its name, nor for the sake of disagreeing with the opinion of my friend, Dr. Ris, but because I thought that such a strong-flying species might possibly have been taken on our coast. But I have since examined a good many collections of dragonflies from China, and have found this species in every one of them; and I now feel sure, that a species, taken by every collector in the Orient,

would have been taken again here by some one since Rambur's time if it were a member of our fauna. I think, therefore, that it should have been omitted.

The restoration of the name *Cannacria* and the supression of Brachymesia should perhaps have a word of explanation. The former name was based on *C. batesi* Kirby,[1] and later *C. gravida* Calvert was properly associated with it. *Brachymesia* was based on *Erythemis furcata* Hagen, and was monotypic. Then these three species were lumped together, improperly in my judgment, under the name *Brachymesia*, that name having page precedence over *Cannacria*.

Cannacria batesi and *C. gravida* are closely allied species and *E. furcata* is very different. The former are slender brown species, rather narrow-winged and with slender parallel-sided abdomen; the last named is a stocky red species with slowly tapering abdomen and with much broader hind wings. Some of the differences may be tabulated as follows:

Characters	*E. furcata*	*C. batesi* and *C. gravida*
Abdomen	stouter, regularly tapering	long and slender, more contracted on 3
Its base	hardly inflated	much inflated
Segment 8	2/3 of 9 + 10	as long as 9 + 10
♂ superior appendages	with tapered tips	with inflated tips
Length of hind wing	less than three times its width	more than three times its width
Its breadth increasing proximally	to the hind angle	to level of tip of Cu$_2$

There are other minor venational differences in *E. furcata* such as fewer antenodal crossveins, and an anal area in the hind wing filled with more elongate cells in less regular rows.

These differences lead us to restore the generic name *Cannacria* for the two species that were formerly placed in it. What

[1] This name should have been replaced by *C. herbida* (Gundlach), *teste* Calvert, Trans. Amer. Ent. Soc. 45: 365-366, the latter name having priority.

to do with the third species was then the question. In most respects it is very like *Sympetrum*. Indeed it is a less aberrant member of that genus than are others that are regularly placed in it: less aberrant than the North American *S. corruptum* and *S. illotum* and far less than the Holoarctic *S. pedemontanum*, or the East Asian *S. uniforme*. The superior appendages of the male are almost identical in form with those of *S. kunckeli*, and are very like those of *S. ardens*, *S. eroticum*, *S. parvulum* and *S. ignotum*. The tip of the inferior appendages is less widely notched than in *S. ruptum*. The anterior lamina of the second segment is not higher or more deeply notched than in *S. anomalum*. Finding so much agreement with the various members of *Sympetrum* (a genus that the splitters may have inadvertently overlooked hitherto) we put it in that genus.[2] It seems to exhibit no characters that are not shown among the species of that genus.

All the bibliographers, including ourselves, have overlooked one publication in which appears a photographic figure of the so-called *Cannacria furcata: The Common Dragonflies about Kansas City*, by Beth Boright, *The Nautilus*,[3] 3:30, 1899, Plate I, fig. 17. The specimen shown in that figure, collected in a park at Kansas City, Missouri, is now in the Cornell University collection by gift of Dr. Merrill.

Two reviewers have found much fault with the incompleteness of our distribution data. We stated in our Introduction (page 47) that "For the convenience of the user distribution and size are condensed to a single line at the head of each description; and both are stated broadly." Completeness was not aimed at. We are not able to understand why similar criticism was not made of our statement of size, for we gave only one measurement.

Our treatment of the genus *Leucorrhinia* suffered from lack of material for study. We had plenty of specimens of *L. intacta* but not any other species; and of *L. borealis* we were not able to obtain any. Even yet an adequate description of that species is lacking in our literature.

[2] Kennedy has recently (*Science* 70:504, 1929) gone out of his way to proclaim how near he once came to putting it where it belongs.
[3] A Kansas City Manual Training High School publication.

An European Plant-bug (Amblytylus nasutus Kirschbaum) recognized from Massachusetts (Hemiptera, Miridae).*

By HARRY H. KNIGHT, Ames, Iowa.

Recently the writer received a small lot of Hemiptera for determination from Mr. C. W. Johnson, of the Boston Society of Natural History. Among the Miridae collected on Nantucket Island, Massachusetts, I find three specimens of the European species, *Amblytylus nasutus* Kirschbaum, not before correctly recorded from this country. These specimens, two males and a female, were taken July 27, 1928, by Mr. Johnson in "Hidden forest", at Polpis, near the eastern end of the island.

Blatchley (Jour. N. Y. Ent. Soc., xxxvi, 1928, p. 15) has reported *Amblytylus* from Indiana, following the recognition of the genus by Mr. Van Duzee. Blatchley reviews the generic characters of *Amblytylus* and concludes with this statement: "A half dozen or so species are known from southern Europe, and the first one taken in this country is herewith described". Unfortunately he gives it a new name, *Amblytylus vanduzeei* n. sp., without further consideration of which European species it might represent. His description, as far as it goes, fits *nasutus* Kirschb. perfectly, and I am convinced his specimens represent the same species as that taken on Nantucket Island by Mr. Johnson.

For comparison and study the writer has a small series of specimens from England and from various parts of Germany, some of which came named as *affinis* Fieb. and some as *nasutus* Kirschb. I have been unable to recognize more than one species in this material, hence I have given considerable study to all the descriptions given under these names, trying to find characters that would separate *affinis* Fieb. from *nasutus* Kirschb.

Fieber (1864) in his original description for *affinis,* makes only one comparison with *nasutus* Kbm., namely: "Ist bei *Amblytylus nasutus* Kbm. einzureihen, von welchem ihn die anders gezeichnete Membran sogleich unterscheidet."

* Contribution from the Department of Zoology and Entomology, Iowa State College, Ames.

Douglas and Scott (1865) sent a British specimen to Fieber for determination and received it back with the name *Amblytylus affinis* Fieb. attached, also the following note: "Allied to *Amblytylus nasutus,* but with different markings on the membrane." Fieber also compares *affinis* with species in allied genera which is of no significance here.

Reuter (1879) in his great work on the European Miridae gives a key for the species of Amblytylus and would separate our forms as follows:

4 (5) Dorsum abdominis concolor. Pallidior
nasutus Kirschb.

5 (4) Dorsum abdominis nigrum. Color multo obscurior. Hemielytra inter venas late fusco-colorata
affinis Fieb.

Saunders (1892) describes *affinis* Fieb. and states: "In the ♀ the entire insect is generally ochreous, in the ♂ the abdomen is black above. Dr. Reuter gives this character to both sexes, but in all my females the abdomen is pale above except at the extreme base."

The writer's examination of specimens reveals the same condition reported by Saunders. I also find that the membrane markings vary in intensity, the males generally darker although some males are light in color as is usual for the female. The male genital structures are identical for all specimens examined, both light and dark colored males included.

Reuter (1879) in his description of *affinis,* states that the rostrum is shorter, attaining base of fourth ventral segment, whereas, for *nasutus* Kbm., attaining middle of venter. I do not believe this statement is significant since the fourth ventral segment is rather near the middle of venter. I am unable to find any difference in length of rostrum among the specimens at hand. Without wasting further time and space I will conclude by giving the synonomy as follows:

AMBLYTYLUS NASUTUS Kirschbaum.

1855 *Lopus nasutus* Kirschbaum, Jahrb. Ver. Nat. Herz. Nassau, x, p. 281; (Sept.) Rhyn. v. Wiesb., Caps., p. 121.

1860 *Capsus* (*Capsus*) *nasutus* Flor, Rhyn. Livlands, I, p. 552.

1861 *Amblytylus nasutus* Fieber, Eur. Hemiptera, p. 319.
1864 *Amblytylus affinis* Fieber, Wien. ent. Monatschr., viii, p. 332.
1865 *Amblytylus affinis* Douglas & Scott, Brit. Hemiptera, p. 389.
1875 *Amblytylus nasutus* Reuter, Rev. Crit. Caps., (ii), p. 148; Acta Soc. Faun. Fl. Fenn., I, p. 164.
1875 *Amblytylus affinis* Saunders, Trans. Ent. Soc. London, 1875, p. 298.
1879 *Amblytylus nasutus* Reuter, Hem. Gymn. Eur., II, p. 211, pl. 3, fig. 1.
1879 *Amblytylus affinis* Reuter, Hem. Gymn. Eur., II, p. 212, pl. 3, fig. 2.
1883 *Amblytylus nasutus* Reuter, Hem. Gymn. Eur., III, p. 535. (Key).
1883 *Amblytylus affinis* Reuter, Hem. Gymn. Eur., III, p. 535.
1892 *Amblytylus affinis* Saunders, Hem. Heterop. Brit. Is., p. 305.
1909 *Amblytylus affinis* Oshanin, Verz. Palaearkt. Hemip., I, p. 881.
1909 *Amblytylus nasutus* Oshanin, Verz. Palaearkt. Hemip., I, p. 881.
1910 *Amblytylus nasutus* Hüeber, Jahreshefte d. Vereins f. vaterl. Naturkunde in Wurtt., 66, p. 257.
1910 *Amblytylus affinis* Hüeber, Jahreshefte d. Vereins f. vaterl. Naturkunde in Wurtt., 66, p. 259.
1929 *Amblytylus vanduzeei* Blatchley, Jour. N. Y. Ent. Soc., xxxvi, p. 15.

The Night Flight of Diurnal Butterflies (Lepid.).

By KENNETH J. HAYWARD, F.E.S., F.R.G.S., English Club, Buenos Aires.

Mr. Harold O'Byrne's article on page 20 of the January issue of the ENTOMOLOGICAL NEWS (Vol. XLI) led me to look up my own records of a similar nature and I was surprised at the number that had accumulated in the last dozen years.

I have not seen Scudder's "Frail Children of the Air" and am not therefore in a position to comment on his records of night flights of butterflies mentioned in that book, but I cannot agree with Mr. O'Byrne that records in which only the name of the species, date and time of the nocturnal flight, and

possibly some additional irrelevant details, are given, are of any scientific value. To have value they must contain also details of atmospheric conditions prevailing at the time of flight, and should in every case be accompanied by the observer's opinion of the possible or probable cause of the unusual time of flight. I regret that in the records I add below, the most essential data, those concerning climatic conditions, will be found wanting, since I have never considered any of the instances quoted of sufficient scientific interest to do more than briefly note them in my day books.

Frankly, I do not see that much is to be gained by the collection of data on isolated night flights of recognised day-flying, sun-loving, butterflies. In this connection I do not include certain shade-loving, dusk-flying groups whose habits need special study to clear up the question of whether they habitually fly during any portion of the night.

How frequently does one disturb a confirmed night flying moth during one's daily round and cause it to fly, albeit unwillingly. Surely the same thing must happen to day-flying butterflies at night. Disturbed from their resting places by moving animal life, or by some action of the elements, they have, as the moths we disturb by day, but one alternative, they must fall to the ground or fly, and, if sufficiently awake, instinct will suggest the use of wings. That one so seldom sees this happen is due to varying causes. To the fact that we do not normally move about at night in the haunts where butterflies sleep and if we do the darkness prevents our seeing the butterflies should they fly, and undoubtedly to the fact also that the butterflies, being for the most part small-bodied, are able more effectively to cling to their grass stems or to the leaves that shelter them than the heavy-bodied moths. Butterflies that are seen indoors at night flying round the lights do not come within the scope of any study such as is suggested, unless they have entered after dark from without. For the most part they are insects that have entered in search of dry shelter during the daylight hours and doubtless mistake the brightness for daylight. Nor do the two records quoted by Scudder of quantities of *Eugonia j-album* and *A. plexippus* flying at night round the lighthouses on Nantucket Island and Lake Ontario belong here; they belong rather to the study of insect migration.

Since however more records are asked for, I add my own, though I do not see that they can be of any great value without the essential data which I cannot give.

End of July or early August, 1919. *Vanessa urticae* L. entered a lighted room at Bruton (Somerset) England about 10-11 p.m. An insect that had almost certainly been disturbed from its roosting place amongst the woodwork of the window shades where they could be commonly found.

Feb. 19, 1920. *Gegenes nostradamus* F. entered my light trap at Reservoir (near Aswan) Upper Egypt. I have several times found species of *Grypocera* at light and refrain from comment.

June 22nd, 1920. *Colias croceus* Fourcr. (*edusa* L.) entered my light trap at Reservoir sometime after 11 p.m. Undoubtedly disturbed by some night-prowling animal from the berseem (alfalfa) that grew directly before and very close to my light.

Oct. 10, 1920. *Parnara mathias* F. Found flying at light at Maadi (just outside of Cairo). The insect was at that time fairly common all round the house.

June 30, 1921. *Dryas pandora* Schiff. At the outside lights of an hotel above Platres, Cyprus. The hotel was right amongst the pine forests where *pandora* was flying commonly. Platres is on the Southern, or Troödos, range at about 4000 feet.

Oct. 6th, 1921. Another *C. croceus* entered the trap at Reservoir at about 10 p.m. after flying about blindly for several minutes. It approached from the direction of the berseem and had without doubt been disturbed.

Nov. 20th, 1921. This time a *Pyrameis cardui* L. entered the trap. A very common butterfly that usually slept amongst the berseem.

Nov. 5th, 1923. *Eunica tatila* H-S. and *Glutophrissa drusilla* Hbn. flew aboard ship off the Brazilian coast between 7 and 10 p.m. during a heavy rainstorm with strong southerly gale. At the same time a very large number of night-flying moths and some other insects arrived and all had probably been blown out by the violence of the wind.

Nov. 9th, 1923. *Pyrameis huntera* F., f. *brasiliensis* Moore flew aboard ship off the southern Brazilian coast, arriving about 11 p.m.

May 1st, 1924. *Colias lesbia* was flying on my lighted verandah. There was alfalfa growing within 100 yards (Villa Ana, Prov. Santa Fé).

May 28th, 1924. Another *Colias lesbia* sought shelter from a tropical downpour of great violence. How it managed to struggle through the rain after being swept from its shelter is another matter. Probably many essayed the task and were beaten to the ground.

Sept. 9th, 1924. Yet another *Colias lesbia*, a male, flew to my verandah light.

Dec. 29th, 1925. A specimen of *P. huntera, f. brasiliensis* came to light. A common insect that has a habit of sleeping under eaves and such like places and may possibly have been disturbed from a few feet from the light.

Jan. 29th, 1927. A small unidentified *Thecla*, which was common around a tall bush before my house at that time, was seen sitting on the wall beneath the outside light. There is no doubt that it had arrived after dark.

The above records from May 1st, 1924, till Jan. 29th, 1927, both inclusive, were made at Villa Ana in the Province of Santa Fé in the Argentine Republic.

Feb. 17th, 1929. A female *Euptoieta claudia* Cr., s. sp. *hortensia* Blanch. was flying around a coloured cabaret sign in Calle Maipú, in the centre of Buenos Aires, at 10.30 p.m.

I add a record that would be more in place under the heading "The Day Flight of Nocturnal Moths".

July 28th, 1921. On the southern range of the Island of Cyprus, between Platres and Troödos, I captured, at about 12.30 p.m., a specimen of *Hippotion celerio* L. that in the bright sunlight of a small forest glade by the side of a stream was flitting from flower to flower, feeding a little at each, and apparently quite oblivious to the fact that it had come from its resting place some seven hours too early.

A Synopsis of the Genus Macromeigenia Including the Description of One New Species (Diptera : Tachinidae).

By H. J. REINHARD, College Station, Texas.

The genus *Macromeigenia* was established by Brauer and Bergenstamm[1] with *Tachina chrysoprocta* Wied. as the type and sole species. Wiedemann's description does not mention the source of his type series but his species is not uncommon in the northeastern section of the United States. In 1921, I described *frioensis*[2] a closely related form but referred it to the genus *Ernestia*. Subsequently Dr. J. M. Aldrich sent me a specimen of *chrysoprocta*, and from a comparison of the two species it appears that *frioensis* is congeneric although quite distinct specifically. A third apparently undescribed species, also from Texas, is herein referred to the genus and a key to the species given below.

[1] Zweifl. d. Kaiserl. Mus., Vol. 5, 1891, p. 311 .
[2] Annals Entomological Society of America, Vol. 14, 1921, p. 329.

Key to species of Macromeigenia.

1. Sides of front and face golden; apex of abdomen yellow, *chrysoprocta* Wiedemann.
   Sides of front and face gray; apex of abdomen black....2
2. Arista slender on apical half; third antennal joint of ordinary length; costal spine usually distinct, *frioensis* Reinhard.
   Arista thickened almost to tip; third antennal joint unusually long; costal spine absent.....*owenii*, new species.

MACROMEIGENIA CHRYSOPROCTA Wiedemann.

Tachina chrysoprocta Wied. Auss. Zweifl., Vol. 2, 1830, p. 309.

Macromeigenia chrysoprocta B.&B. Zweifl. d. Kaiserl., Mus., Vol. 5, 1891, p. 311.

Although this species has not been reported from the Southwest, it ranges southward to Virginia, South Carolina, and Georgia. Two specimens are in my collection, one female from Tennessee taken June 12, 1922, without collector's label; and one male from Maryland collected on flowers of *Daucus*, August 14, by Dr. C. H. T. Townsend. The species may be instantly recognized by the striking golden front and face and needs no further description.

MACROMEIGENIA FRIOENSIS Reinhard.

Ernestia frioensis Rein. Ann. Ent. Soc. Am., Vol. 14, 1921, p. 329.

The type locality is Frio County, Texas. Fourteen additional specimens including both sexes have since been received from the following localities, all in the western part of the State: Presidio, Marathon, Barstow, Balmorhea, Menard, and Spur. This series is rather uniform in size ranging from 7 to 9 mm. in length.

The female differs from the male in having the third antennal joint narrower and yellow near base, the pulvilli short, eyes less hairy, and the usual orbital bristles present. The front is only slightly wider, by micrometer 0.368 of the head width as compared with 0.350 in male (average of five in both). Genital segments short and retracted with no piercer present.

In the male the posterior forceps are keeled behind near base, divided and divergent beyond the middle, with the tips blunt and broadly rounded on the posterior extremity; outer forceps about as long as inner, basal part raised along the middle, tapering uniformly to tips which are rather pointed.

These items with the original description cover the essential details of the species.

Macromeigenia owenii, n. sp.

Male: Front at vertex 0.381 of head width in the one specimen, projecting prominently below; face of unusual length and strongly receding, rather narrowly and very deeply excavated with the ridges practically parallel on entire length, bare except a few bristles next to vibrissae, which are situated close to mouth; eyes rather small, densely hairy; parafrontals and sides of face with dense plumbeous pollen, thinner on cheeks so that the yellow ground color is apparent on upper part in certain angles; median stripe blackish, before triangle about equal to width of parafrontal which widens rapidly downward; one pair (inner) verticals developed; ocellars present, proclinate; frontals about 8 in number, the uppermost two stout and reclinate but not very long, below antennae the rows strongly divergent extending to level of arista; parafrontals with numerous bristly hairs extending downward almost to middle of face; parafacial bare on lower half, not narrowed downward, about equal the width of facial depression; antennae of enormous length, basal joints yellow, third black except at base, about eight times longer than second; arista black, thickened almost to tip, basal joints short but distinct; cheeks one-half the eye height; proboscis short, moderately stout, labella fleshy; palpi yellow, slender to tip, with a few long hairs on lower edge; posterior orbits broad below narrowed toward vertex; occiput with two rows of bristles above and rather dense fine pale hairs beneath.

Thorax cinereous, when viewed from behind the dorsum shows four black stripes in front and five behind, the median one not extending in front of suture; scutellum reddish at apex, also covered with dense cinereous pollen, which appears somewhat thinner on middle of disk in a flat rear view. Thoracic chaetotaxy: acrostichal 3, 3; dorsocentral 3, 4; humeral 4; posthumeral 3 (anterior and posterior ones small); presutural 2; notopleural 2; supraalar 3; intraalar 3; postalar 2; pteropleural 1; sternopleural 2, 1; scutellum with one discal, three large lateral and a smaller decussate apical pair; postscutellum normal; infrasquamal hairs absent; calypters semitransparent, white.

Abdomen black, much longer than broad and rather thick to apex; dorsum entirely covered with changeable cinereous pollen which has a brownish tinge on hind margins of the intermediate segments; the latter each with a pair of discal, besides a median marginal pair on second and a marginal row on third; first segment with a smallish median marginal pair; fourth with discal and marginal rows; genital segments black, of ordinary

size; fifth sternite deeply divided with a V-shaped incision, the lobes black.

Legs black, mid tibia with one bristle near middle of outer front side; hind tibia subciliate on outer posterior edge with one long bristle near middle; claws and pulvilli elongate.

Wings hyaline; no costal spine; veins yellowish, bare except third which has two setules at base; fourth vein with a rounded obtuse bend without stump, joining the third at costa and closing the first posterior cell well before apex of wing; tip of hind cross vein much nearer to bend than small cross vein; last section of fifth vein short.

Length, 10 mm.

Described from one male specimen collected at Presidio, TEXAS, September 9, 1928, by W. L. Owen, Jr., for whom the species is named.

Type: Male, Cat. No. 42,883, U.S.N.M.

The species is less robust in build than the genotype *chrysoprocta*, and is much more densely pollinose having a general pale gray appearance. In the latter respect it is very similar to *frioensis* from which it differs in the thickened arista, longer antennae, more protruberant front, etc. The host relations are unknown.

Changes in the Department of Entomology, Massachusetts Agricultural College.

After 31 years of continuous service as head of the Department of Entomology at the Massachusetts Agricultural College, Dr. Henry T. Fernald retired on July 1st, 1930, to devote his time to his study of the Sphecoidean wasps and other researches in Entomology. For administrative purposes, the Departments of Entomology, Zoology and Geology have been combined into a single major department, with Dr. Clarence E. Gordon, Professor of Zoology and Geology, as head.

Dr. Charles P. Alexander has been promoted to a full professorship, in charge of the college instruction in Entomology. Dr. G. Chester Crampton continues in charge of all work in Insect Morphology and Phylogeny. Assistant Professor Arthur I. Bourne has been made a Professor, in charge of research in the Agricultural Experiment Station. Mr. Clayton L. Farrar has been promoted from Instructor in Apiculture to Assistant Professor, and Dr. Harvey L. Sweetman has been appointed Assistant Professor, in charge of the courses in Insect Ecology and Physiology.

Dr. Fernald will remain at Amherst until about October 1st, but thereafter will reside at 707 East Concord Avenue, Orlando, Florida.

Entomological Literature

COMPILED BY LAURA S. MACKEY UNDER THE SUPERVISION OF E. T. CRESSON, JR.

Under the above head it is intended to note papers received at the Academy of Natural Sciences, of Philadelphia, pertaining to the Entomology of the Americas (North and South), including Arachnida and Myriopoda. Articles irrelevant to American entomology will not be noted; but contributions to anatomy, physiology and embryology of insects, however, whether relating to American or exotic species will be recorded.

The numbers **within brackets** [ ] refer to the journals, as numbered in the list of Periodicals and Serials published in the January and June numbers (or which may be secured from the publisher of Entomological News for 10c), in which the paper appeared. The number of, or annual **volume,** and in some cases the part, heft, &c. the latter **within** ( ) follows; then the pagination follows the **colon** :

All continued papers, with few exceptions, are recorded only at their first installments.

*Papers containing new forms or names have an * preceding the author's name.

(S) Papers pertaining exclusively to neotropical species, and not so indicated in the title, have the symbol (S) at the end of the title of the paper.

For records of Economic Literature, see the Experiment Station Record, Office of Experiment Stations, Washington. Also Review of Applied Entomology, Series A, London. For records of papers on Medical Entomology, see Review of Applied Entomology, Series B.

☞ *Note the change in the method of citing the bibliographical references, as explained above.*

Papers published in the Entomological News are not listed.

GENERAL.—Balduf, W. V.—Our friends the insects. [Trans. Illinois State Acad. Sci.] 21: 46-68. **Barnes, W.**—Obituary. By G. P. Engelhardt. [19] 25: 143-144. **Bromley, S. W.**—Bee-killing robber flies. [6] 38: 159-176, ill. **Cook, W. C.**—Some influences of location upon light trap catches. [4] 62: 95-98. **Dodd, F. O.**—An investigation of the methods of preparing and mounting insects for permanent preservation. [Trans. Ill. State Acad. Sci.] 22: 298-329. **Hamlyn-Harris, R.**—The relative value of larval destructors and the part they play in mosquito control in Queensland. [Proc. R. Soc. Queensland] 41: 23-38, ill. **Heikertinger, F.**—Ueber "Transformative Schutzfärbung" und ihre wissenschaftliche begründung. [97] 50: 193-219. **Hingston, R. W. G.**—The Oxford University Expedition to British Guiana. [Geog. Jour., London] 76: 1-24, ill. **Hora, S. L.**—Ecology, bionomics and evolution of the torrential fauna, with special reference to the organs of attachment. [Phil. Tr. R. Soc. London] 218, (B): 171-282, ill. **Howard, L. O.**—Striking entomological events of the last decade of the Nineteenth Century. [76] 1930: 5-18. **Hudson, G. V.**—Over eenige nieuwigheden in de Entomologie. [58] 8: 76-83. **Internationale regeln** der zoologischen nomenklatur. [79] 16: 1-15. **Kessler, E.**—Der wahrheit zur liebe zu "Ein ausflug in die umgebung New Yorks". [14] 44: 89-90, 98-99. **Lutz, F. E.**—Aquatic insect pets. [15] 1930: 389-401, ill. **Marshall, J. F.**—A new form of appa-

ratus for photographing insects. [22] 21: 139-140, ill. **Martensen, Th.**—Concerning the opinions rendered by the international commission on zoological nomenclature. [34] 89: 284-285. **Poche, F.**—Richtigstellung der wiedergabe eines von 649 zoologen gestellten antrages seitens des sekretärs der internationalen nomenklaturkommission. [34] 89: 268-271. **Reverdin J. L.**—Obituary. By E. Bujard. [Compte Rendu Soc. Phys. Hist. Nat., Geneve] 47: 8-11. **Sawa, R.**—A preliminary survey of the Arthropodan fauna of the University Farm at Komaba. [Jour. Coll. Agric. Imp. Univ. Tokyo] 10: 329-345, ill. **Schmitz, H.**—Phoriden aus eipaketen von locusta migratoria in Daghestan. [Naturhist. Maandblad] 19: 67-69, ill. **Thorpe, W. H.**—Biological races in insects and allied groups. [Biol. Rev. & Biol. Proc. Cambridge Philo. Soc.] 5: 177-212, ill. **Van Hay, M. E.**—Observations et experimentation personnelles faites en 1926-1929 sur les rapports des insectes et des fleurs. [Bull. Soc. R. Bot. Belgique] 62: 82-86. **Weiss, H. B.**—Insects and witchcraft. [6] 38: 127-133.

ANATOMY, PHYSIOLOGY, ETC.—Allard, H. A.—The chirping rates of the snowy tree cricket (Oecanthus niveus) as affected by external conditions. [4] 62: 131-142, ill. **Aubel & Levy**—Le potentiel limite d'oxydo-réduction dans les chenilles de Galleria mellonella. [77] 104: 862-864. **Beeson, C. F. C.**—Sense of smell of longicorn beetles. [31] 126: 12. **Benazzi, D. M.**—Superrigenerazione del tarso e conseguente autotomia esuviale in una larva di Aeschna. [Natura, Milano] 21: 105-107, ill. **Benazzi, M.**—Manifestazioni quantitative della rigenerazione negli insetti. [Riv. Biol. Milano] 11: 625-631. **Buddenbrook, W. V.**—Beitrag zur histologie und physiologie der raupenhäutung mit besonderer berücksichtigung der versonschen drüsen. [46] 18: 701-725, ill. **Bugnion, E.**—Les organes buccaux de la nébrie. (Nebria complanata) avec la description de l'arc pharyngé de cet insecte. [33] 70: 115-143, ill. **Chidoba, S.**—Appareil de Golgi, vacuome et chondriome pendant la spermatogenèse de Dytiscus marginalis. [77] 104: 1094-1095, ill. **Cockayne, E. A.**—Thoracic and elytral abnormalities in Coleoptera. [36] 78: 61-65, ill. **Codreanu, M. R.**—La nutrition et l'action sur l'hôte de Symbiocladius rhithrogenae, Chironomide à larve ectoparasite des nymphes d'Ephémères. [69] 190: 1462-1464. **Constantineanu, M. J.**—Der aufbau der sehorgane bei den im suesswasser lebenden Dipterenlarven und bei puppen und imagines von Culex. [89] 253-346, ill. **Cousin, M. G.**—Le developpement endoparasitaire de la larve ectoparasite de Mormoniella

vitripennis. [69] 190: 1530-1532. **Cunningham, J. T.**—Evolution of the hive-bee. [31] 125: 857. **de Lépiney, J.**—Contribution a l'etude du complexe biologique de Lymantria dispar. [Mem. Soc. Sci. Nat. Maroc] 23: 100pp., ill. **de Lépiney, J.**—Sur le comportement des adultes de Schistocerca gregaria. Sur l'instinct grégaire chez Schistocerca gregaria. [77] 104: 350-352; 352-354. **Fisher & Parkin.**—Presence of a yeast in the death watch beetle (Xestobium rufo-villosum). [31] 125: 892. **Friele, A.**—Die postembryonale entwicklungsgeschichte der männlichen geschlechtsorgane und ausführungswege von Psychoda alternata. [46] 18: 249-286, ill. **Gaecks, H.**—Die maulwurfsgrill. [Mikrokosmos] 23: 153-159, ill. **Götze, G.**—Zur phylogenie, physiologie und biologie der Apis-Schwärme. [97] 50: 219-234. **Gresson, R. A. R.**—Certain phenomena of tenthredinid oogenesis as revealed mainly by Feulgen's nuclear reaction. [53] 73: 617-631, ill. **Henig, B.**—Ueber die chordotonalorgane der schmetterlingsraupen. [34] 89: 183-186, ill. **Heymons, R.**—Ueber die morphologie des weiblichen geschlechtsapparats der gattung Scarabaeus. [46] 18: 536-574, ill. **Heymons & von Lengerken.**—Studien über die lebenserscheinungen der Silphini. VI. [46] 18: 170-188, ill. **Hirschler & Hirschlerowa.**—Sur la coexistence de l'appareil de Golgi, du vacuome et des mitochondries dans les cellules sexuelles males chez Gryllus campestris. [77] 104: 952-954, ill. **Hövener, M.**—Der darmtraktus von Psychoda alternata und seine anhangsdrüsen. [46] 18: 74-113, ill. **Hughes-Schrader, S.**—Contributions to the life history of the Icerya-ine coccids, with special reference to parthenogenesis and hermaphroditism. [7] 23: 359-380. **Ke, O.**—Morphological variation of the prothoracic gland in the domestic and the wild silkworms. The granular bodies in the brain of the domestic and wild silkworms. [Bull. Sci. Kjusu Imp. Univ. Fukuoka] 4: 12-21; 37-44, ill. [Japanese and English]. **Lopez, A. W.**—Ability of mature grubs of Leucopholis irrorata (Melolonthidae) to survive submergence in water. [The Philippine Jour. Sci.] 42: 307-308, ill. **McClung, C. E.**—Orthopteran material for cytological studies. [Bull. Dept. Biol. Yenching Univ.] 1: 85-86. **Marcu, O.**—Die geschlechtsunterschiede der stridulationsorgane einiger Curculioniden. [Bull. Sec. Sci. Acad. Roumaine] 13: 8-13, ill. **Marcu, O.**—Beitrag zur kenntnis der tracheen der Hymenopteren. [34] 89: 186-189, ill. **Melis, A.**—Contributo alla conoscenza dell'anatomia degli stigmi degli insetti (Stigmi di larve di Lepidotteri e Coleotteri). [Redia] 18: 125-160, ill. **Metcalf, C. L.**—The mouthparts of insects.

[Trans. Illinois State Acad. Sci.] *21*: 109-135, ill. **Metcalf & Hockenyos.**—The nature and formation of scale insect shells. [Trans. Illinois State Acad. Sci.] *22*: 166-184, ill. **Metz, C. W.**—A possible alternative to the hypothesis of selective fertilization in Sciara. [90] 64: 380-382. **Miller, L.**—Dragon fly psychology. [13] *22*: 45-46, ill. **Mouchet, S.**—Morphologie externe de la larve d'Urophora solstitialis. [Bull. Soc. Zool. France] 54: 351-357, ill. **Noyes, B.**—The peripheral sense organs in the termite Termopsis angusticollis. [Univ. Calif. Pub. Zool.] 33: 259-286, ill. **Obata, R.**—An anatomical study of a strain of the silkworm, showing hereditary malformation. [Bull. Sci. Kjusu Imp. Univ. Fukuoka] 4: 1-11, ill. [Japanese and English.] **Pandazis, G.**—Ueber die relative ausbildung der gehirnzentren bei biologisch verschiedenen ameisenarten. [46] 18: 114-169, ill. **Rivnay, E.**—Technique in artificial feeding of the bed bug, Cimex lectularius. [Jour. Parasit.] 16: 246-249, ill. **Ross, H. H.**—Notes on the digestive and reproductive systems of the german cockroach. [Trans. Ill. State Acad. Sci.] *22*: 206-216, ill. **Sacharov, N. L.**—Studies in cold resistance of insects. [84] 11: 505-517. **Shepard, H. H.**—The pleural and sternal sclerites of the lepidopterous thorax. [7] 23: 237-260, ill. **Shinji, O.**—Studies of the germ cells of aphids with an especial reference to the evolutional significance of chromosomes. [Saito Ho-On Kai Monographs] Rep. Ser. No. 4: 163pp., ill. **Stegemann, F.**—Die flügeldecken der Cicindelinae. Ein beitrag zur kenntnis der insektencuticula. [46] 18: 1-73, ill. **Strickland, E. H.**—Phagocytosis of internal insect parasites. [31] 126: 95. **Teissier, G.**—Sur l'énergétique de la croissance de Tenebrio molitor. [77] 104: 857-858. **Teissier, G.**—Discontinuités et indéterminations dans la croissance biochimique de Galleria mellonella. [77] 104: 859-860. **Verrier, M. M. L.**—Observations préliminaires sur les variations chromatiques de quelques Orthoptères. Sur la structure des organes des sens et les réactions sensorielles de Phyllium siccifolium (Phasmide). [Bull. Soc. Zool. France] 54: 73-75, 536-548, ill. **Voinov, V. D.**—Excretia prin intermediul cromatocitel or la nevertebrate. [Acad. Românâ] 15: 220pp., ill. **Wachter, S.**—The moulting of the silkworm and a histological study of the moulting gland. [7] 23: 381-389, ill. **Wigglesworth, V. B.**—The formation of the peritrophic membrane in insects, with special reference to the larvae of mosquitoes. [53] 73: 593-616, ill. **Willomzik, E.**—Ueber den bau ovarien verschiedener coprophager lamellicornier und ihre beziehung zur brutpflege. [46] 18: 669-700, ill. **Xiezopolski, A.**—O

melanizmie niektórych gatunków motyliz grupy Rhopalocera. [Bull. Ent. Pologne] 9: 105-111. **Zarapkin, S. R.**—Ueber gerichtete variabilität bei Coccinelliden. II. Entwicklung der komplizierten zeichnungsformen bei Propylea 14-punctata. [46] 18: 726-759.

ARACHNIDA AND MYRIOPODA.—*Beier, M.—Alcuni Pseudoschorpioni esotici. (S). [23] 23: 197-209, ill. **Bequaert, J.**—Ticks collected by the American Museum Congo Expedition 1909-1915, with notes on the parasites and predacious enemies of these arthropods. [40] 426: 12pp. ***Chamberlin, R. V.**—A new geophiliod chilopod from Potter Creek Cave, California. [Univ. Calif. Pub. Zool.] 33: 297-300, ill. **Hoffmann, C. C.**—Monografias para la entomologia medica de Mexico. [An. Inst. Biol., Mexico] 1: 135-164, ill. ***Roewer, C. F.**—Weitere weberknechte IV Ergänzung der: "Weberknechte der Erde". 1923. (S). [Abhand. Naturwis. Ver. Bremen] 27: 341-452, ill.

THE SMALLER ORDERS OF INSECTS.—Banks, N.—Trichoptera from Cape Breton, Nova Scotia. [19] 25: 127-131, ill. ***Ewing, H. E.**—Two new generic names and three new species of Mallophaga. [95] 43: 125-128. **Hilton, W. A.**—A proturan from the Tehachapi. [13] 22: 47. **Light, S. F.**—Fossil termite pellets from the Seminole pleistocene. [Univ. Calif. Pub. Bull. Dept. Geol. Sci.] 19: 75-80, ill. **Neave, F.**—Migratory habits of the mayfly, Blasturus cupidus. [84] 11: 568-576, ill. **Peters, H. S.**—A new biting louse (Mallophaga) from white-tailed deer. [10] 32: 76-79, ill. **Schoenemund, E.**—Die unterscheidung der Ephemeropteren-gattungen Heptagenia ind Ecdyonurus. [34] 90: 45-48. ***Silvestri, F.**—Descrizione di un nuovo genere di Japygidae (Thysanura) del Peru. [23] 23: 232-236, ill. **Stewart, M. A.**—Notes on North American Ceratophylli (Siphonaptera). [4] 62: 152.

ORTHOPTERA.—Davis, W. T.—Rearing the young of the viviparous cockroach, Panchlora cubensis. [6] 38: 86-88. **Ross, H. H.**—The life history of the german cockroach. [Trans. Illinois State Acad. Sci.] 21: 84-93, ill. **Zolotarevsky, B. N.**—Le criquet migrateur (Locusta Migratoria capito) a Madagascar. [An. Epiphyties, Paris] 15: 185-235, ill.

HEMIPTERA.—*Bunn. R. W.—Notes on the genus Aphelonema with descriptions of new species. [103] 3: 73-77, ill. ***Cockerell & Bueker.**—New records of Coccidae. (S). [40] 424: 8pp., ill. ***Deay, H. O.**—Six new species of

Tenagobia (Corixidae). (S). [19] 25: 171-179, ill. **Doering, K. C.**—Synopsis of the family Cercopidae in North America. [103] 3: 53-64, cont. ***Drake & Harris.**—Notes on some South American Gerridae. [3] 19: 235-239. **Drake & Harris.**—A wrongly identified American water-strider. [19] 25: 145-146. **Gaumont, L.**—Conditions générales de pullulation des aphides. [An. Epiphyties, Paris] 15: 256-316, ill. ***Goding, F. W.**—New Membracidae, X. (S). [6] 38: 89-92. ***Goding, F. W.**—Membracidae in the American Museum of Natural History. (S). [40] 421: 1-27, ill. ***Harris, H. M.**—Notes on some South American Nabidae, with descriptions of new species. [3] 19: 241-248. ***Hungerford, H. B.**—A report on the nomenclature of some neotropical Notonecta with the description of some new species. [19] 25: 138-143, ill. **Jaczewski, T.**—Notes on the American species of the genus Mesovelia (Mesoveliidae). [An. Mus. Zool. Polonici] 9: 12pp., ill. **Kiritshenko, A. N.**—On the generic position of two species of Hemiptera described by W. L. Distant. (S). [75] 6: 148-153, ill. ***Knight, H. H.**—New species of Psallus (Miridae). [4] 62: 125-131. **Knowlton, G. F.**—Notes on Utah Lachnea (Aphididae). [4] 62: 152-161, ill. ***Lawson & Beamer.**—Some new Scolops (Fulgoridae) with notes on other species. [103] 3: 67-72, ill. **Lawson, P. B.**—Concerning Scolops cockerelli (Fulgoridae). [4] 62: 120-122. ***Lobdell, G. H.**—Twelve new mealybugs from Mississippi. (Coccoidea). [7] 23: 209-236, ill. ***Oman, P. W.**—A new Paracoelidia (Cicadellidae). [103] 3: 78. **Stoner, D.**—Spined soldier-bug reared on celery leaf-tyer. [39] 14: 21-22. **de la Torre-Bueno, J. R.**—Ceratocombus vagans in Westchester County, N. Y. [19] 25: 144.

LEPIDOPTERA.—***Bell, E. L.**—Descriptions of new South American Hesperiidae. [6] 38: 149-156, ill. ***Bouvier, E. L.**—Seconde contribution à la connaissance des Saturnioïdes du Hill Museum. (S). [Bull. Hill Mus.] 4: 1-116. **Box, H. E.**—Observations on a migration of butterflies in Venezuela. [36] 78: 51-59, ill. ***Braun, A. F.**—Notes on Pterophoridae with description of a new Oidaematophorus. [4] 62: 122-124. **Caradja, A.**—Die kleinfalter der stötzner'schen ausbeute, nebst zutraege aus meiner sammlung. [Acad. Romînâ Mem. Sect. Stiin.] 4: 361-428. **Clark, A. H.**—Notes on some local butterflies. [10] 32: 80-82. **Comstock & Coolidge.**—The life history of Philotes sonorensis. [38] 29: 17-21, ill. ***Cook, W. C.**—A new species of Euxoa and some notes on Chorizagrotis. [4] 62: 147-150. **Hawkins, J. H.**—Tarsal claws of noctuid larvae. [7] 23: 393-396,

ill. ***Holland, W. J.**—New species of Erebia (Satyridae). [1] 56: 149-153. **Holland, W. J.**—Papilio monuste (A critique). [19] 25: 133-136, ill. ***Hopp, W.**—Neue Megalopygiden. (S). [63] 44: 75-77, ill. ***Klots, A. B.**—Diurnal Lepidoptera from Wyoming and Colorado. [19] 25: 147-170, ill. ***Lathy, P. I.**—Notes on South American Lycaenidae, with descriptions of new species. [36] 78: 133-137, ill. **Moore, S.**—Lepidoptera of the Beaver Islands. [Occ. Pap. Mus. Zool. Univ. Michigan] 214: 28pp. **Petrie, F.**—The accuracy of a moth. [31] 125:928. **Schwanwitsch, B. N.**—Studies upon the wing-pattern of Catagramma and related genera of South American nymphalid butterflies. [Trans. Zool. Soc. London] 21: 105-286, ill. **Wyss, A.**—Papilio asterias, variation. [Pro. Jun. Soc. Nat. Hist.] 1: 8.

DIPTERA.—Alexander, C. P.—The crane-flies (Tipulidae) of New England: third supplementary list. [Occ. Pap. Boston Soc. Nat. Hist.] 5: 267-278. ***Alexander, C. P.**—Records and descriptions of Neotropical crane-flies (Tipulidae), VIII. [6] 38: 109-120. **Anon.**—Zancudos de Costa Rica. [Bol. Cam. Agric. Costa Rica] 2: 259-264. ***Curran, C. H.**—New American Asilidae. (S). [40] 425: 21pp., ill. ***Curran & Alexander.**—Report of the Diptera collected at the station for the study of insects, Harriman Interstate Park, N. Y. pp. 21-115. **Efflatoun, H. C.**—A monograph of Egyptian Diptera, Part III, Family Tabanidae. [Mem. Soc. R. Ent. Egypte] 4: 114pp., ill. ***Hall, D. G.**—Three new West Indian Sarcophaginae. [40] 423: 1-4, ill. **Hardy, G. H.**—Observations of some habits of and mimicry amongst robber-flies. [Proc. R. Soc. Queensland] 41: 69-71. **Herms & Burgess**—A description of the immature stages of Hippelates pusio and a brief account of its life history. [12] 23: 600-603, ill. **Johnson, M. S.**—Some observations on chironomid larvae and their usefulness as fish food. [Trans. Am. Fish. Soc.] 1929: 153-159, ill. ***Kröber, O.**—Die tribus Pangoniini der neotropischen region. [34] 89: 211-228, ill. ***Kröber, O.**—Die Tabanidengattung Sackenimyia. (S). [34] 90: 1-12, ill. ***Pinto, C.**—Mosquitos da região neotropica (Brasil, Estados de S. Paulo e Rio de Janeiro). II. [Mem. Inst. Oswaldo Cruz] 23: 179-184, ill. **Stone, A.**—The bionomics of some Tabanidae. [7] 23: 261-304, ill. ***Szilady, Z.**—Central American Tabanidae. A revision of the genus Scione. A little known North American Tabanus. [Biol. Hung.] 1, (7), 21-30, ill. **Walker, C. R.**—Anopheles quadrimaculatus in Colorado. [4] 62: 150-151.

COLEOPTERA.—Blair, K. G.—Brachypsectra—the solution of an entomological enigma. [36] 78: 45-50, ill. **Brown, W. J.**—A revision of the North American species of Eanus. [4] 62: 161-166, ill. **Butcher, F. G.**—Notes on the cocooning habits of Gyrinus. [103] 3: 64-66. ***Fall, H. C.**—On Ataenius strigatus and allied species. [6] 38: 93-108. **Frost, C. A.**—Anthaxia aeneogaster [taken in Acton, Mass.]. Seeking a better climate. [19] 25: 146. **Gause, G. F.**—Die variabilität der zeichnung bei den blattkäfern der gattung Phytodecta. [97] 50: 235-248, ill. ***Hatch, M. H.**—Records and new species of Coleoptera from Oklahoma and western Arkansas, with subsidiary studies. [Publ. Univ. Oklahoma Biol. Surv.] 2: 15-26. **Hatch, M. H.**—The collection and preparation of Coleoptera. [Publ. Univ. Oklahoma Biol. Surv.] 2: 27-31. ***Hatch & Ortenburger.**—Records and new species of Coleoptera from Oklahoma. [Publ. Univ. Oklahoma Biol. Surv.] 2: 7-14. **Hayes, W. P.**—Morphology, taxonomy, and biology of larval Scarabaeoidea. [Ill. Biol. Monogr.] 12: no. 2, 119pp., ill. **Knaus, W.**—Notes on Kansas Coleoptera. [103] 3: 79-80. **Knowlton, G. F.**—Notes on Utah Coleoptera. [39] 14: 36-37, cont. **Mohr, C. O.**—Morphological comparisons of Coprinae, Aphodinae and Geotrupinae (Scarabaeidae). [Trans. Ill. State Acad. Sci.] 22: 263-284, ill. **Müller, G.**—Coleotteri cavernicoli Italiani. [Le Grotte d'Italia] 4:65-85, ill. **Ochs, G.**—Remarks on "A list of the insects of New York". [6] 38: 135-138. **Sim, R. J.**—Scarabaeidae, Coleoptera; observations on species unrecorded or little-known in New Jersey. [6] 38: 139-147. **Wilson, J. W.**—The genitalia and wing venation of the Cucujidae and related families. [7] 23: 305-358, ill.

HYMENOPTERA.—*Cockerell, T. D. A.—Descriptions and records of bees. (S). [75] 6: 48-57. **Creighton & Tulloch.**—Notes on Euponera gilva (Formicidae). [5] 37: 71-79, ill. **Dow, R.**—The nests of New England wasps. [Bull. Boston Soc. Nat. Hist.] 1930: 11-16, ill. ***Friese, H.**—Die schmarotzerbienengattung Osiris. (S) [60] 91: 103-127, ill. **Gösswald, K.**—Weitere beiträge zur verbreitung der mermithiden bei ameisen. [34] 90: 13-27, ill. **Haskins, C. P.**—Preliminary notes on certain phases of the behavior and habits of Proceratium croceum. [6] 38: 121-126. **Iltis, H.**—Ueber eine autonome soziale gruppenbewegung bei insektenlarven. [34] 90: 59-61, ill. **Paoli, G.**—Contributo allo studio dei rapporti fra le acacie e le Formiche. [Mem. Soc. Ent. Italiana] 9: 131-132. **Rau, P.**—Life history notes

on the wasp, Polistes annularis. [4] 62: 119-120. **Rau, P.**—Ecological and behavior notes on the wasp, Polistes pallipes. [4] 62: 143-147. **Roepke, W.**—Beobachtungen an indischen honigbienen, insbesondere an Apis dorsata. [Meded. Landbouwh. Wageningen (Nederland)] 1930: 28pp., ill. **Smith, M. R.**—A description of the male of Proceratium croceum, with remarks. [7] 23: 390-392, ill. **Smith, M. R.**—Another imported ant [Prenolepis bourbonica in Florida] [39] 14: 23-24. **Weyer, F.**—Ueber das "Springen" von Odontomachus. [34] 90: 49-55. ***Whittaker, O.**—Some new species and a new genus of parasitic Hymenoptera from British Columbia. [10] 32: 67-76.

A MANUAL FOR THE STUDY OF INSECTS. Revised Edition. By JOHN HENRY COMSTOCK, Emeritus Professor of Entomology in Cornell University, and ANNA BOTSFORD COMSTOCK, Emeritus Professor of Nature Study in Cornell University, and GLENN W. HERRICK, Professor of Entomology in Cornell University. Nineteenth Edition. Ithaca, New York, The Comstock Publishing Co. (Copyright, 1930). 23.5 x 15.5 cm. Pp. xiii, 401, 633 text figs. 3 pls. Price $4.00.

Much historical interest attaches to this nineteenth edition of a long- and well-known text. The preface to the original edition, dated December, 1894, signed by John Henry Comstock, is reprinted here. Following is a Foreword, dated April 5, 1929, also signed by him, stating that the intended revision of the Manual, begun in 1914, resulted in a new textbook, An Introduction to Entomology, but having had it still in mind to revise the Manual, making it more elementary, failing health caused him to pass this task on to Professor Herrick. An introduction dated Dec. 2, 1929, by the latter says: "The aim of the revision has been to keep the Manual in form and arrangement practically as it was first written. The attempt has been made, of course, to bring the subject matter down to date, to simplify it and to condense it somewhat in order to bring it within the horizon of the beginning student. The more advanced student has been adequately cared for by Prof. Comstock's much more extended work, 'An Introduction to Entomology' and by other works of somewhat similar character."

We have made some comparisons with a copy of the fourth edition (1901 which has x + 710 pages, 797 figures and 6 plates. Part of the difference in size is due to the new edition's having a larger page form with more lines to the page, partly to the omission of some passages, especially from the sections in smaller type of the earlier text. But there are also many minor changes in content and phraseology. The keys are often

entirely new and from varied sources. Many of the old figures have disappeared, new ones have been added, many are familiar, even with altered legends corresponding to changed views. Pronunciation of scientific names is usually indicated by long or short signs over the vowels in the names themselves rather than by an accented syllabification in parentheses. Some idea of the condensation obtained is seen by a comparison of the indexes at the end of the two editions, that of the new revision containing fewer entries. Incidentally, the word "mimic" occurs in neither index and perhaps the only reference to this phenomenon is the very brief statement on page 275 of the new book, under *Basilarchia archippus*.

This revised edition undoubtedly will continue the usefulness and the tradition of its predecessors among new generations of students to whom its senior authors, alas, may be personally unknown. PHILIP P. CALVERT.

A GENERAL TEXTBOOK OF ENTOMOLOGY by A. D. IMMS. Second Edition. New York, E. P. Dutton & Co. 1930. 703 pp., illustrated. $10.80.—The first edition of this excellent work was reviewed in the NEWS, vol. xxxvi, pp. 283-286 for Nov., 1925. That a new edition is now demanded is a striking testimony to its merits, and as the author says in the preface to this present volume: "The necessity for issuing a second edition, in a comparatively short interval of time, is taken as an indication that this book has fulfilled a definite requirement. The labour of revision has been considerable, and sincere thanks are due to those entomologists in various parts of the world who lightened the task by their comments upon individual paragraphs, or sections of several of the chapters. In more than one instance the reviewers' criticisms have also proved helpful.

In the second edition various additions and emendations have been made. The most important are the revised classifications affecting the orders Dermaptera, Isoptera and Thysanoptera; the supplementary literature at the end of many of the chapters, and the notes on recent advances in the subject incorporated in the Addenda on pp. 668-72. One new diagram has been added and three of the text-figures have been replaced by new illustrations. Special thanks are due to the McGraw-Hill Book Company, of New York, who allowed the use of an illustration from The Anatomy and Physiology of the Honey Bee, by Snodgrass.

The perennial subject of taxonomic nomenclature is always a difficulty in a book of this description. In reply to criticisms by specialists it may be pointed out that the latest names in many cases have not been adopted, but rather those which are best known and most widely used."

BIOLOGIE DER HEMIPTEREN, eine Naturgeschichte der Schnabelkerfe, by DR. H. WEBER, of Danzig (formerly of Bonn). *Biologische Studienbücher*, Vol. XI, 543 pages, 329 figures. Published by Julius Springer, Berlin. 1930. For sale in the United States by G. E. Stechert & Co., 91 E. 10th St., New York. Price, bound, $10.95.

The very title of this book, *Biology of the Hemiptera*, suggests a heroic undertaking on the part of its writer, and a mere glance through its profusely illustrated pages shows that the author has not shirked his self-imposed responsibility. Moreover, the volume is without question one of the best publications of recent times in biological entomology. Within it the writer brings together not only a review of practically all that has heretofore been written on the life and structure of the Hemiptera, but also the results of his own extensive and minute studies of those complex hemipterous mechanisms that for a century past have baffled the skill of insect anatomists. The Hemiptera, though one of the most important orders from the standpoint of economic entomology, have remained one of the least understood of all the major groups of insects. This work gives to Hemipterology at once a new status, and the book is one to which all students of sucking insects must have access. A brief review of its contents will best support this statement.

Of the five principal sections under which the contents of the volume are treated, the first deals with movements and sensory activities. It includes details of the skeletal structures concerned with locomotion, the musculature and mechanism of the legs, the various uses of the appendages, the structure of the wings and the mechanism of flight, the organs of stridulation, the structure of the nervous system and the organs of sense, and the sensory reactions.

The second section treats of the various organs and systems of organs accessory to metabolism, including those of ingestion, digestion, distribution, oxidation, and elimination. It contains a wealth of information on the structure and mechanism of the feeding organs to be obtained from no other single source, and much of the matter in this subject is based on the author's own intimate knowledge of the hemipterous head and the structure of the mouth parts. In numerous, clear-cut line drawings the various types of feeding mechanisms are shown with all their intricate detail of structure and musculature, and many obscure features of the piercing and sucking processes are convincingly explained. The long-standing mystery of how the coccids, for example, thrust their slender, folded mouth bristles at full

length into the plant tissue is beautifully and simply elucidated. The accomplishment is shown to depend upon two things: first there is a clasp in the base of the labial groove which can securely hold the bundle of mouth bristles; and second, each bristle is independently provided with short protractor and retractor muscles. On relaxation of the labial clasp, one mandibular bristle is thrust out as far as its minute protractor muscle can extrude it, then the other follows until the two tips meet, after which the maxillary bristles are exserted until their tips lie between those of the mandibular bristles. Now the labial clasp comes into action and grasps the bristle bundle, holding it in the new position while the retractor muscles take up a fraction of the slack in the loop of the bundle within the crumena, and at the same time extend the protractors. Thus again the mechanism is ready for exsertion, and by another advance, first of one piercing bristle, then of the other, and finally of the sucking maxillary tube, the entire bundle is sunken a little deeper. With each repetition the bristle loop grows smaller, the exserted bundle reaches a little farther, until at last the food stream of the host is tapped. The same mechanism is present in all Hemiptera, whether the retracted bristles are straight, folded in a crumena, or looped outside the head.

The rest of this section is devoted to the sucking mechanism and the ingestion of food, the salivary glands, the alimentary canal, the processes of digestion, the ectodermal glands and their various secretions, respiration, and circulation.

The third section, on the sex life and development, begins with a description of structural differences between the males and females, and the anatomy of the sexual organs. Then comes a full account of the external genital organs, with many details of the various methods of copulation. This is followed by descriptions of the eggs, the structure of the ovipositor, and an account of the methods of egg-laying adopted by different members of the order. Embryology is treated briefly, but many interesting things are given concerning the hatching of the eggs and the care of the young. Under *metamorphosis* the structural changes between the young and adult are shown, and the postembryonic development of the Coccidae and related forms is fully illustrated. Many examples of viviparity, polymorphism, and heterogeny are then discussed, and a special sub-section is devoted to the life-cycle of the Aphididae.

The last two sections have to do with the relations of the insects to the environment, both inanimate and animate. The book closes with 14 pages of closely printed bibliographical references, and ends with generic and subject indices.

A volume such as this *Naturgeschichte der Schnabelkerfe* will be a welcome addition to every general entomological library, since few lines of work do not somewhere touch upon the sucking bugs; to the hemipterist, however, it will be an indispensable acquisition, since it puts before the eye of the special worker in Hemiptera a comprehensive view of the entire field of this subject. Moreover, if we may look at it from another phase, the book must be seen as the most recent proof to American entomological students of the folly of thinking we can survive without a knowledge of foreign languages.

R. E. Snodgrass.

OBITUARY.

Mrs. Anna Botsford Comstock.

Anna Botsford Comstock, emeritus professor of nature study at Cornell University, well-known wood engraver and author, died at 10:45 o'clock Sunday morning, August 24, at her home, 123 Roberts Place, Ithaca, New York. She had been in failing health for more than a year, but had been well enough to lecture at the university, and had just completed a series of talks for Summer session students on August 15.

Anna Botsford Comstock was born September 1, 1854, on a farm among the hills of Cattaraugus County, New York. Her grandparents were pioneers, moving their families and goods with ox teams from New England to the wilds of Western New York. Her mother, Phoebe Irish, was of Quaker stock, which followed William Penn to America. Her father was a descendant of Henry Botsford, who settled in Milford, Connecticut, in the 17th century, and of Nathaniel Foote, who arrived in Wethersfield, Connecticut, in 1636.

Mrs. Comstock spent the first 10 years of her life on the farm where she acquired her early enthusiasm for out-of-door life. Then her parents moved to the village of Otto, a few miles away and built a home in which they lived during the rest of their lives. Anna Botsford continued her education by attending the village school, and at the age of 14 taught for one term in the primary department of this school to fill the

place of a teacher who was ill. At the age of 16 she became interested in a college education and was sent to Chamberlain Institute at Randolph, a Methodist seminary with an excellent faculty. In 1873 she graduated from a college preparatory course and pronounced the salutatory in Latin on the Commencement stage. After teaching for one year she entered Cornell University and graduated in 1878. In 1885 she received the B. S. degree.

At Cornell she met John Henry Comstock, who had graduated four years earlier, and was an instructor in zoölogy. They were married October 7, 1878, and lived in a house on the campus for 33 years until the ground on which it stood was needed for University purposes.

In 1879 Mr. Comstock was made entomologist to the United States Department of Agriculture, and obtained a two years' leave of absence from Cornell to take up this work. He was overburdened with duties, and Mrs. Comstock began assisting him, first with his correspondence, and later, when he was unable to find an artist skilled in the use of the microscope, she undertook to illustrate his reports upon the scale insects of the citrus fruits and was subsequently given a position as assistant in the entomological division, working there with her husband until their return to Cornell.

At this time Prof. Comstock was planning to write, for the help of his students, a manual for the study of insects, and it became Mrs. Comstock's ambition to illustrate this book. In order to do this she learned the art of wood engraving, studying with John P. Davis at Cooper Institute, New York. The manual was published in 1895, but meanwhile its illustrator had gained so much skill in representing the texture of butterflies' wings that she was elected to the Society of American Wood Engravers and to the special section of original engravers, among whom are the best that the world has produced. Her engravings were exhibited at many European and American expositions and she won the Bronze Medal at the Buffalo Exposition.

When, in 1896, the first appropriations were made at Cornell University for introducing nature study into the rural schools, Mrs. Comstock was asked to assist in this work and was made an assistant professor in the Extension Department in 1898. Subsequently she became a regular lecturer in Cornell University, and was made a professor of nature study in 1920. During the year 1899-1900 she was an extension lecturer at Stanford University.

The Handbook of Nature Study, a volume of more than 900 pages, illustrated, and published in 1911, was an outgrowth of her work with school teachers in the state. The book has gone through 15 editions and is in use in Alaska, Australia, Japan, China and England, as well as in the schools of the United States and Canada.

Mrs. Comstock was made editor of the Nature Study Review, now combined with the Nature Magazine, in 1917, and is the author of many nature stories in periodicals for children. Her books include: Ways of the Six-Footed; How to Know the Butterflies (with her husband); How to Keep Bees; Confessions to a Heathen Idol; The Pet Book; Bird, Animal, Tree, and Plant Notebooks.

She was associate director of the American Nature Association, a member of the Society of American Wood Engravers, and of Sigma Xi.

Mrs. Comstock had no children of her own, but she has mothered hundreds of lonely boys and girls, many of them coming from farm homes to work their own way through the University. She and Professor Comstock made their home a place of rendezvous, not only for those who were interested in the particular fields of work to which they were devoting their time, but also to any who needed a helping hand.

Mrs. Comstock is survived by her husband, who has been an invalid for several years. — KATHARINE FINCH in *Ithaca Journal News*, Aug. 25, 1930.

Portraits of Prof. and Mrs. J. H. Comstock were published by Mr. Gunder in ENTOMOLOGICAL NEWS for April, 1930, plate X.

Dr. George Dimmock died at Springfield, Massachusetts, his native town, on his seventy-eighth birthday, May 17, 1930, as announced in *Science* for May 23. He received the bachelor of arts degree from Harvard in 1877 and that of doctor of philosophy from Leipsic in 1881, after working in Leuckart's laboratory, his thesis being *The Anatomy of the Mouth Parts and of the Sucking Apparatus of Some Diptera* (Boston, 1881), probably his best-known entomological paper. In it he compared the trophi of *Culex, Bombylius, Eristalis* and *Musca*. In 1881-82 he studied at the Sorbonne, Paris. From 1877-1890 he was an editor of *Psyche*, the late B. Pickman Mann being his associate for part of this period. His subsequent entomological work has been mainly anatomical and has concerned scales and glands of insects (*Psyche*, 1882, 1883) and the early stages of Carabid, Coccinellid and Chrysomelid beetles. Some of his papers on Coleoptera were written in cooperation with the late Frederick Knab (1904). He contributed the chapter on Coleoptera to the *Riverside Natural History* (1881) and an article on *Belostomidae and some other Fish-destroying Bugs* to the Annual Report of the Fish and Game Commission of Massachusetts for 1886. P. P. Calvert.

James Waterston, of the British Museum of Natural History, died April 28, 1930. He was born at Paisley, Scotland, in 1879. He gave special attention to parasitic arthropods and had intended to write a monograph of the Mallophaga. An obituary notice is in the *Scottish Naturalist* for May-June, 1930.

We greatly regret to record the death of Ernest Baylis, an Associate Editor of Entomological News, on July 6, 1930. An appreciation and biographical notice will appear in the next number of this journal.

Correction.

Page 135, April, 1930. For line 11 substitute line 27; for line 27 substitute "simulans Heidemann (Heteropt.: Tingididae)." The table of contents on the cover of the April number has these two titles correct.

EXCHANGES

This column is intended only for wants and exchanges, not for advertisements of goods for sale. Notices not exceeding three lines free to subscribers.

These notices are continued as long as our limited space will allow; the new ones are added at the end of the column, and only when necessary those at the top (being longest in) are discontinued.

Oxybelinae (Sphecidae, Hymenoptera)—Wanted from all parts of North and South America and West Indies. Will determine, exchange or purchase. V. S. L. Pate, Entomology Dept., Cornell University, Ithaca, N. Y.

Wanted—Names and addresses of collectors of insects, particularly Lepidoptera. Those from foreign countries especially invited. Will pay cash or exchange. Peter M. Casamento, P. O. Box 276, West New York, New Jersey.

Exchange—All groups of Lepidoptera in exchange for Noctuidae of the World. Foreign correspondence desired. A. Glenn Richards, Jr., Roberts Hall, Cornell Univ., Ithaca, N. Y., U. S. A.

Exchange—Lepidoptera of the Northwest for beautiful and showy exotics. C. W. Herr, Priest River, Idaho.

WANTED for cash or in exchange, hibernating pupae, especially Papilios, Saturniidae, Eacles imperialis, Autom. io and others from all parts of the States, Canada and Mexico. Send lists with best prices to Max Rothke, 1846 East Elm St., Scranton, Pa.

Mordellidae from all parts of the world wanted for special study. Will determine, exchange or purchase. Emil Liljeblad, 1018 Roscoe St., Chicago, Illinois.

Exchange—Will exchange California Butterflies for any of your locality. What have you to offer? Correspondence solicited. John Imschweiler, 748 N. Eucalyptus Ave., Inglewood, California.

Exchange—Oregon Lepidoptera for those of your locality. Kenneth M. Fender, 930 South Davis St., McMinnville, Oregon.

Exchange—Will exchange Montana Lepidoptera and Coleoptera for material of your locality. Correspondence solicited from all parts of the world. W. F. Lawrence, 2209 6th Ave. No., Great Falls, Montana.

Exchange—South American, also Java, Borneo, Celebes and Madagascar Butterflies in lots by 12.50 or 100 monthly arrivals. Wish for revisional study all North American PARNASSIUS and ARCTIIDAE also APANTESIS. Communicate with Mrs. Emma Kessler, 499 Manhattan Ave., New York City, N. Y.

Wanted.—Elateridae and their larvae (wireworms) from all parts of North America; would prefer the larvae alive, if possible, for biological studies. Will exchange Pennsylvania Elateridae and Scarabaeidae.—C. A. Thomas, Penna. State College Lab., Kennett Square, Pa.

Insects of all Orders from Laurentian Mountains, Province of Quebec, in exchange for named species lacking in our collection. Albert F. Winn, Redpath Museum, McGill University, Montreal Canada.

WANTED TO BUY or in exchange for Chinese insects. Proc. Ent. Soc. Philadelphia Vols. I-VI, Trans. Am. Ent. Soc. Vols. I-IV, Bull. Brooklyn Ent. Soc. Vols. I-V, Trans. Ent. Soc. London, 1st ser. Vols. I-V and Psyche Vols. I. XI, and XIII. G. P. Jung, Bureau of Entomology, Nanking, China.

RECENT LITERATURE

FOR SALE BY

THE AMERICAN ENTOMOLOGICAL SOCIETY

1900 RACE STREET, PHILADELPHIA, PA.

DIPTERA.

M-7.—**Leonard** (M. D.)—A revision of the dipterous family Rhagionidae (Leptidae) in the United States and Canada. (Mem., no 7, 182 pp., 3 pls., 1930) 4.50

942.—**Cresson** (E. T., Jr.)—Studies in the dipterous family Ephydridae. III. (Trans., **56**, 93-131, 1930) ..... .75

947.—**Cresson** (E. T., Jr.)—Notes on and descriptions of some Neotropical Neriidae and Micropezidae. (Trans., **56**, 307-362, 1930) 1.00

944.—**Hull** (F. M.)—Some new species of Syrphidae from North and South America. (Trans., **56**, 139-148, 1 pl., 1930) ..... .25

HYMENOPTERA

946.—**Mitchell** (T. B.)—A contribution to the knowledge of Neotropical Megachile, with descriptions of new species. (Trans., **56**, 155-305, 5 pls., 1930) 3.00

LEPIDOPTERA

945.—**Holland** (W. J.)—New species of Erebia (Satyridae). (Trans., **56**, 149-153, 1930) ..... .20

943.—**Williams** (R. C., Jr.) & **Bell** (E. L.)—Short studies in American Hesperiidae. (Trans., **56**, 133-138, 1 pl., 1930) .20

ORTHOPTERA.

941.—**Rehn** (J. A. G.)—A new genus of Eneopterinae from Hispaniola (Gryllidae). (Trans., **56**, 87-92, ipl., 1930) ..... .20

Of Interest to Specialists.

The American Entomological Society has placed in operation a system by which entomologists who are not situated near the larger reference libraries, or who desire to build up special entomological libraries of their own and yet do not care to subscribe to the annual volume of the Society's "Transactions," may secure copies of the papers appearing in the Society's publications promptly after their receipt from the press.

If you are interested and desire to avail yourself of this system, advise us of the order or orders in which you wish to secure publications, together with a remittance of $1.00 or more as a deposit, and all papers on such orders will be mailed to you directly on their receipt from the printer. These will be charged against your amount of deposit at 25 per cent. discount from the list or general sale price. Any balance to your credit is returnable on demand should you not care to continue the subscription.

BUTTERFLY TRANSITION FORMS AND "FREAKS" WANTED

WHEN YOU SELL YOUR COLLECTIONS, SELL THESE KINDS OF SPECIMENS SEPARATELY. THEY BRING MORE.

JEANE D. GUNDER,
310 LINDA VISTA AVENUE, PASADENA, CALIFORNIA

A Year of Costa Rican Natural History

By AMELIA SMITH CALVERT

Sometime Fellow in Biology, Bryn Mawr College, and

PHILIP POWELL CALVERT

Professor of Zoology, University of Pennsylvania, Editor of Entomological News

Cloth, 8vo., pp. xix + 577. Frontispiece (of 14 species of insects in colors), 137 black and white illustrations, 5 maps. $3.00.

For Sale by The American Entomological Society, 1900 Race St., Philadelphia.

BRITISH LEPIDOPTERA, NAMED AND "SET"

600 Different species .....4 cents each
1000 Different species .....8 cents each
800 Different species..... 6 cents each
1200 (many rare)..... .10 cents each

BRITISH COLEOPTERA, NAMED AND "CARDED"

500 Species ..... 3 cents each
1500 Species.....7 cents each
1000 Species. ....5 cents each
2000 Species (many rare) -- ....10 cents each

Fine Morphos Uranias, etc., in papers at moderate prices

Particulars from

A. FORD 42 IRVING ROAD, BOURNEMOUTH, ENGLAND

ENTOMOLOGICAL NEWS.

WANTED perfect copies of Vol. 40 (1929), No. 3 (March). Will give 30 cents apiece.

ENTOMOLOGICAL NEWS,
1900 Race Street, Philadelphia, Pa.

FOR 50 CENTS.

Half-tone Reproduction of the Photograph of the Fourth International Congress of Entomology at Ithaca, August, 1928.

Mail 50 cents (25 two-cent stamps or a postal money order) and receive, postpaid, an *uncreased* copy of Plate XII, Entomological News, April, 1930, ready for framing.

ENTOMOLOGICAL NEWS,
1900 Race Street, Philadelphia, Penna.

NEW ARRIVALS

From Colombia, South America:
OVER 10,000 BUTTERFLIES, INCLUDING

Morpho cypris
" sulkowskyi
Morpho amathonte
Caligo spp.

From Cuba:
1500 BUTTERFLIES AND MOTHS, INCLUDING

Papilio columbus
" andraemon
" celadon
" devilliersi
Urania boisduvali
Erinyis guttalaris
Protoparce brontes, etc.

From Venezuela:

Over 5000 Lepidoptera
200 Dynastes hercules

From New Guinea:

2000 Coleoptera
200 Orthoptera

From Assam, India:
1200 BUTTERFLIES AND MOTHS, INCLUDING

Papilio arcturus
" philoxenus
Kallima inachis
Brahmaea wallachi

And Many Other Showy Species

From Tibet (Bhutan):

Armandia lidderdalii
Parnassius hardwicki

CATALOGUES OF
ENTOMOLOGICAL SUPPLIES AND SPECIMENS
ON APPLICATION

If interested kindly send your list
of desiderata for further information to

THE KNY-SCHEERER CORPORATION OF AMERICA

Department of Natural Science
G. Lagai, Ph.D.

10-14 West 25th Street
New York